SEQUENCE LISTING

<110> DAICEL Chemical Industries LTD.

<120> Novel (R)-2,3-butanediol dehydrogenase

<130> D1-A0009

<140>
<141>

<150> JP 2000-333363
<151> 2000-10-31

<160> 17

<170> PatentIn Ver. 2.1

<210> 1
<211> 1143
<212> DNA
<213> Pichia angusta

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acggacttga agaattcac atattctgga ggtcctgttt ttttccctaa acaaggcacc 180
aaggacaaga tttcgggata cgaacttcct ctctgtcctg acatgaatt tagcggaacg 240
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aagctgccag actcgattcc cgacgatatt ggagcactgg ttgagcctat ttctgttgcc 540
tggcatgctg ttgaacgcgc tagattccag cctggtcaga cggccctggt tcttggagga 600
ggtcctatcg gccttgccac cattcttgct ctgcaaggcc atcatgcggg caaaattgtg 660
tgttccgagc cggccttgat cagaagacag tttgcaaagg aactgggcgc tgaagtgttc 720

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<210> 2

<211> 380

<212> PRT

<213> Pichia angusta

<400> 2

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Thr Val Pro Glu Pro Glu Ile Lys Asn Pro Asn Asp Val Lys Ile Lys
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Val Ser Tyr Cys Gly Ile Cys Gly Thr Asp Leu Lys Glu Phe Thr Tyr
            35                  40                  45

Ser Gly Gly Pro Val Phe Phe Pro Lys Gln Gly Thr Lys Asp Lys Ile
        50                  55              60

Ser Gly Tyr Glu Leu Pro Leu Cys Pro Gly His Glu Phe Ser Gly Thr
65                  70                  75                  80

Val Val Glu Val Gly Ser Gly Val Thr Ser Val Lys Pro Gly Asp Arg
                85                  90                  95

Val Ala Val Glu Ala Thr Ser His Cys Ser Asp Arg Ser Arg Tyr Lys
                100                 105                 110
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Asp Thr Val Ala Gln Asp Leu Gly Leu Cys Met Ala Cys Gln Ser Gly
       115   120   125

Ser Pro Asn Cys Cys Ala Ser Leu Ser Phe Cys Gly Leu Gly Gly Ala
       130   135   140

Ser Gly Gly Phe Ala Glu Tyr Val Val Tyr Gly Glu Asp His Met Val
145   150   155   160

Lys Leu Pro Asp Ser Ile Pro Asp Asp Ile Gly Ala Leu Val Glu Pro
         165   170   175

Ile Ser Val Ala Trp His Ala Val Glu Arg Ala Arg Phe Gln Pro Gly
        180   185   190

Gln Thr Ala Leu Val Leu Gly Gly Gly Pro Ile Gly Leu Ala Thr Ile
       195   200   205

Leu Ala Leu Gln Gly His His Ala Gly Lys Ile Val Cys Ser Glu Pro
    210   215   220

Ala Leu Ile Arg Arg Gln Phe Ala Lys Glu Leu Gly Ala Glu Val Phe
225   230   235   240

Asp Pro Ser Thr Cys Asp Asp Ala Asn Ala Val Leu Lys Ala Met Val
         245   250   255

Pro Glu Asn Glu Gly Phe His Ala Ala Phe Asp Cys Ser Gly Val Pro
        260   265   270

Gln Thr Phe Thr Thr Ser Ile Val Ala Thr Gly Pro Ser Gly Ile Ala
       275   280   285

Val Asn Val Ala Val Trp Gly Asp His Pro Ile Gly Phe Met Pro Met
       290   295   300

Ser Leu Thr Tyr Gln Glu Lys Tyr Ala Thr Gly Ser Met Cys Tyr Thr
305   310   315   320

Val Lys Asp Phe Gln Glu Val Val Lys Ala Leu Glu Asp Gly Leu Ile
                325   330   335

Ser Leu Asp Lys Ala Arg Lys Met Ile Thr Gly Lys Val His Leu Lys
                340   345   350

Asp Gly Val Glu Lys Gly Phe Lys Gln Leu Ile Glu His Lys Glu Asn
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Asn Val Lys Ile Leu Val Thr Pro Asn Glu Val Ser
        370   375   380

<210> 3
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<212> PRT
<213> Pichia angusta

<400> 3
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<210> 4
<211> 21
<212> PRT
<213> Pichia angusta

<400> 4
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 1   5   10   15

Gln Asp Leu Gly Leu
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<210> 5
<211> 6
<212> PRT
<213> Pichia angusta

<400> 5
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<210> 6
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:an artificially
      synthesized primer sequence

<220>
<221> misc_feature
<222> 6, 9, 15, 18
<223> n is a or c or g or t.

<400> 6
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<210> 7
<211> 20
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:an artificially
      synthesized primer sequence

<220>

<221> misc_feature

<222> 9, 12

<223> n is a or c or g or t.

<400> 7

tcrtcraang cngcrtgraa   20

<210> 8

<211> 530

<212> DNA

<213> Pichia angusta

<400> 8

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tgctgtgcgt cgctgagctt ctgcggtttg ggtggtgcca gcggcggttt tgccgagtac 180

gtcgtttacg gtgaggacca catggtcaag ctgccagact cgattcccga cgatattgga 240

gcactggttg agcctatttc tgttgcctgg catgctgttg aacgcgctag attccagcct 300

ggtcagacgg ccctggttct tggaggaggt cctatcggcc ttgccaccat tcttgctctg 360

caaggccatc atgcgggcaa aattgtgtgt tccgagccgg ccttgatcag aagacagttt 420

gcaaaggaac tgggcgctga agtgttcgat ccttctacat gtgacgacgc aaatgctgtt 480

ctcaaggcta tggtgccgga gaacgaggga ttccacgccg ccttcgatga   530

<210> 9

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:an artificially
    synthesized primer sequence

<400> 9

ttggcatgcg atctgtcgga gcaatg   26

<210> 10
<211> 27
<212> DNA
<213> Artificial Sequence

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<223> Description of Artificial Sequence:an artificially
    synthesized primer sequence

<400> 10

tgagcatgca aatgctgttc tcaaggc   27

<210> 11
<211> 107
<212> DNA
<213> Pichia angusta

<400> 11

gaatttagcg gaacggtggt cgaggttggc tctggtgtca caagtgtgaa acctggtgac 60
agagtcgcag ttgaagctac gtcgcattgc tccgacagat cgcatgc   107

<210> 12
<211> 706
<212> DNA
<213> Pichia angusta

<400> 12

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aatcgccgtc aatgtggccg tttggggaga ccacccaatt ggattcatgc caatgtctct 180

gacttaccag gagaaatacg ctaccggctc catgtgctac accgtcaagg acttccagga 240

agttgtcaag gccttggaag atggtctcat atctttggac aaagcgcgca agatgattac 300

aggcaaagtc cacctaaagg acggagtcga gaagggcttt aaacagctga tcgagcacaa 360

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tacgtaacag gtgctgagca tttaataatt acctactatt ttctaaatta gtaaattgta 600

tgtttcttga gcaggaggag atactagagc aatttcaaaa catctccaat tgccaaatcc 660

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<210> 13

<211> 620

<212> DNA

<213> Pichia angusta

<400> 13

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gaattttccg cgctaatcca gtcaacggta acaagaccag gatggagttt gaatatttct 180

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aggatatttg gctgtgtgag gcggcccaac agaaccttat aagtggggtg taccaacagg 300

gcttgctgca tcctaaaaaa gaagtcgggg tggtttacta ccagtcgctg gttcgtgaaa 360

gaataatggc ttagctccga gatgtggagg cagtctggtc agactgtgcg gcaattaaat 420

aagacgcgga tgtactgcac cagagtgaat aaaggaattc caattcgata gcaaatattg 480

ctgtaataat gagtgaccag atttattacc gaacctagcc agcccggggt tttttacaca 540

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<210> 14

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:an artificially
synthesized primer sequence

<400> 14

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<210> 15
<211> 523
<212> DNA
<213> Pichia angusta

<400> 15

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ttagcggaac ggtggtcgag gttggctctg gtgtcacaag tgtgaaacct ggtgacagag 480
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<210> 16
<211> 30
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:an artificially
synthesized primer sequence

<400> 16

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<210> 17
<211> 28
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:an artificially
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<400> 17

cagtctagat taggaaacct cgttcggc   28